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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,349	01/23/2004	Edgardo R. Hortaleza	TI-36656 (032350.B565)	7082
23494	7590	06/28/2005	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED			PHAM, THANHHA S	
P O BOX 655474, M/S 3999			ART UNIT	
DALLAS, TX 75265			PAPER NUMBER	
			2813	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/763,349	Applicant(s) HORTALEZA, EDGARDO R.	
	Examiner Thanhha Pham	Art Unit 2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05/05/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 15-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 15-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to Applicant's Amendment dated 05/05/2005.

Election/Restrictions

1. Applicant's election of claims 1-8 and 15-20 in the reply filed on 05/05/2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 3, 8-14 has been canceled by Applicant's amendment to the claims filed on 05/05/2005.

Oath/Declaration

3. Oath/Declaration filed on 01/23/2004 has been considered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-2, 4-7, and 17-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Pu et al. [U.S. 6,593,662].

► With respect to claim 1, Pu et al. (figs.4A-4B, col. 4) discloses an integrated circuit, comprising:

- a substrate (202) with a conductive layer;
- a first die (206) adhered to the substrate;
- a first adhesive layer (204b) on a top surface of the first die;
- a plurality of spacers (220) adhered to the first adhesive layer (204b), the plurality of spacers (220) arranged in a rectangular pattern on top of the first die;
- a second die (208) having a second adhesive layer (204c) on a bottom surface of the second die, wherein the second adhesive layer (204c) is adhered to the plurality of spacers (220) such that the plurality of spacers are between the first and second dies;
- a plurality of wires (210a, 210b) coupled to the conductive layer and to the first and second dies operable to conduct electricity between the conductive layer and the first and second dies; and
- an encapsulating material (214) operable to form the first and second dies, the spacers, the substrate, and the wires into a single package.

► With respect to claim 2, Pu et al. (figs.4A-4B, col. 4) discloses an integrated circuit, comprising:

- a first die (206);
- a second die (208);

Art Unit: 2813

a plurality of spacers (204c, 220, 204b) between the first die and the second die, wherein each of the spacers is adhered to the first die and the second die.

- ▶ With respect to claim 4, Pu et al. (col. 4, lines 47-48) discloses that the spacers (220) are formed from silicon.
- ▶ With respect to claim 5, Pu et al. (col. 4, lines 28-31) discloses that the spacers (204c, 204b) are formed from an adhesive material.
- ▶ With respect to claim 6, Pu et al. (fig. 4A) discloses that there are exactly four spacers (204c, 220, 204b) in the plurality of spacers and the spacers are arranged in a rectangular pattern.
- ▶ With respect to claim 7, Pu et al. (col. 3, lines 18-22) inherently discloses that the dies (206, 208) are formed from a first material; and the spacers (204c, 220, 204b) are formed from a second material different from the first material.
- ▶ With respect to claim 15, Pu et al. (figs. 4A-4B, col. 4) discloses an integrated circuit comprising:
 - a first die (206);
 - a plurality of spacers (220) adhered to the first die;
 - a second die (208) adhered to the plurality of spacers such that the spacers are between the first and second dies.
- ▶ With respect to claim 17, Pu et al. (fig. 4B) discloses the first and second dies and the spacers are enclosed in an encapsulating material (214).
- ▶ With respect to claim 18, Pu et al. (fig. 4A, col. 4, lines 3-40) discloses: the first die adhered to a substrate (202) with conductive layer; a plurality of wires

Art Unit: 2813

(210a, 210b) coupling to the conductive layer; and each of the wires coupling to at least one of the dies (206, 208).

► With respect to claim 19, Pu et al. (fig. 4A) discloses there are exactly four spacers (220) in the plurality of spacers and the spacers are arranged in a rectangular pattern.

► With respect to claim 20, Pu et al. (col. 3, lines 18-22) inherently discloses that the dies (206, 208) are formed from a first material; and the spacers (204c, 220, 204b) are formed from a second material different from the first material.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pu et al. [U.S. 6,593,662].

Pu et al.'s figs. 4A-4B substantially discloses all the limitations as claimed including wherein the plurality of spacers are a first plurality of spacers wherein the first plurality of spacer are adhered to a first side of the second die (208). Pu et al does not expressly disclose a second plurality of spacers on a second side of the second die wherein a third die adhered to the second plurality of spacers such that the second plurality of spacers is in between the second and third dies. However, fig. 5B of Pu et

Art Unit: 2813

al. discloses a third die (309) adhere to a second die (308). Therefore, it would have been obvious to the skilled in the art to have the third die and second spacers in the fig. 4 of Pu et al. since it has been held that mere duplication of the essential working parts of the device involves only routine skill in the art. See *St. Regis Paper Co. V. Bemis Co.*, 193 USPQ 8.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanhha Pham whose telephone number is (571) 272-1696. The examiner can normally be reached on Monday and Thursday 9:00AM - 9:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thanhha Pham

Patent Examiner

Patent Examining Group 2800